

The Spanish forests also possess the ash, the birch, alder, beech, and several species of pines. The chestnut grows in some districts in large quantities, and supplies man with food.

Mr. STRICKLAND inquired, if Capt. Widdrington knew of the existence of the *Quercus encina* in Greece—as mention is made by their poets of an acorn used as food by man: to which Capt. Widdrington replied in the negative.

The PRINCE OF CANINO read a paper 'On four new species of Bat.' One, a new genus, he dedicated to the President of the Association, under the name of *Inglisius rhedycinus*. The genus is closely allied to *Anoura*. The remaining new species were *Anoura Bourcierii*, *Molossus Delatrei*, and *Arctibeus Floresii*.

The PRINCE OF CANINO made some general remarks on the classification of Mammalia; more especially in reference to Prof. Owen's views of the connexion between the Pachydermata and Ruminantia. He was sure he only expressed the feelings of a great many continental naturalists when he said that he was sorry that Prof. Owen had come to this conclusion; although, if truth compelled him to give up the old order Ruminantia he would do so. So strong were the characters which connected together this order, that Illiger thought it might even be reduced to a genus.

Prof. VAN DER HOEVEN stated that the peculiar character of the stomach, the general form of the skeleton, the form of the condyles of the jaw, and the nature of the teeth seemed to connect the Ruminantia so strongly together as to render their fusion with any other order almost impossible.

Prof. OWEN remarked that if we confined our attention to existing forms of animals, we might arrive at the conclusion of Prof. Van der Hoeven; but it was when we studied extinct forms that we saw our ground giving way. He then pointed out the fact, that in the Camelidae and Moschidae there was a departure from the normal type of the stomach in Ruminantia, approaching, in fact, the character of that of the Pecora. Although the number and character of the teeth in the adult forms of Ruminantia differed from those of the Pachydermata, yet, when we examined the young of many of the Ruminantia we found there a departure from the adult type, and an approach to that of Pachydermata. Again, Cuvier had placed the fossil genus *Anoplotherium* amongst Pachydermata on account of its divided or double cannon bone; but even this character had been observed by Dr. Falconer in the Ruminantia in a species of *Moschus*.

Dr. LANKESTER read a list of dates of the periodical appearance of birds at Llanrwst observed by John Blackwall, Esq.; and called attention to the importance of such lists, in connexion with meteorological registers, in determining the influence of external agents on the periodic phenomena of organization.

Dr. A. G. MELVILLE, on a careful examination of the *Lepidosiren annectens*, had come to a different conclusion from that held by Prof. Owen on the position of this anomalous animal in the sub-kingdom Vertebrata. He had no hesitation in referring it to the class of Amphibia, and was unwilling to limit that class to the closely allied one of Fishes. He rested its reptilian character upon the absence of the supra-occipital bone, the presence of the large epia- and basi-cranial bones, the non-developement of the maxillary and inter-maxillary bones, and especially on the enormous magnitude of the Wernerian bones which became subservient to mastication and were ankylosed to the expanded pterygoids: also on the composition of the tympanic pedicle: on the nostril being doubled and the posterior aperture intra-oral—and referred to Rusconi's remarks on the position of that aperture as influenced by the relative development of the superior maxilla and vomer: on the double auricle, septum ventriculosum, semi-spiral bulbus arteriosus, and on the arrangement of the vessels distributed to the external and internal gills and to the lungs; and in addition to the left pulmonary artery pointed out by Peters, he had found a right one, having, like its fellow, its origin from the truncus aortae: on the existence of external cutaneous gills during the adult condition, which did not occur in any fish, and were not the homologues of the deciduous filaments found in sharks and rays: on the co-existence of external and internal gills with

lungs—in other words, on its exhibiting the different modes of circulation, respiration, &c., in the Proteus—second stage of the larva of the frog and amphibia or menopoma—(he instanced the like case of the tadpole, of the *Rana paradoxa*, in which there were internal gills and lungs with a cartilaginous chorda dorsalis, ossified neurapophysis, and protruded hinder extremities; were this arrested in its development before the external gills have wholly disappeared, we should have an animal essentially similar to the Lepidosiren):—on the form and relative size of the brain in relation to its containing cavity, and mentioned certain calcareous concretions which overlie the fourth ventricle, &c. &c. Many of the peculiarities were to be classed among the adaptive characters;—and for some excellent remarks on this subject in reference to the osseous system in another tribe, to wit, the Plagiostomous fish, he would refer to Mr. Owen's 'Lectures,' vol. II. The absence of respiration by the surface, as in other Amphibia, might have an influence on the great development of the respiratory organs. In conclusion, although the Lepidosiren is the most fish-like of the Amphibia, still he is forced to regard it as a true amphibian, and not as a fish, and thus reverts to the determination of Bischoff.

The PRINCE OF CANINO stated that although Oken had pointed out the nostril with two openings as a character of the Reptilia, he had received a letter from that naturalist, in which he declared his belief that the Lepidosiren was a fish and not a reptile, and that the double opening of the nostril was apparent and not real.

Prof. OWEN thought the mere possession of a double nostril would not be sufficient to place this animal with the reptiles. He, however, denied that this was the case. The scales of the Lepidosiren were those of a fish. The breathing organs he deemed to have no more of the character of lungs than the organs possessed by many fishes which occasionally lived on land. The circulation was not decidedly reptile, and approached in character that seen in some of the plagiostomous fishes and the young of most fish. He did not think the size of blood globules or the cells of the bone of sufficient importance to decide the class of Lepidosiren. Neither could a better case be made out for the heart or brain;—in the structure of both of which organs there was an identical character with many fishes. The spiral character of intestine was certainly a good distinction as far as existing Reptilia; and he was not certain that the form of the coprolites of the Ichthyosaurus depended on this structure. From the osteological characters of the head he also concluded that the Lepidosiren was a fish and not a reptile.

A long and rather desultory discussion followed; in which the Prince of Canino, Prof. Milne Edwards, Sir J. Richardson, Dr. Carpenter, Dr. Melville, and Mr. Hogg took part.—Mr. GIBSON, from America, offered to send to England living specimens of the American Lepidosiren. A wish was expressed that the naturalists present at the Association should not part without an opportunity of examining the structure of this animal; and Dr. Carpenter and Dr. Melville offered their specimens for the purpose. It was stated that Dr. Melville had been requested to draw up a report on the structure and affinities of the Lepidosiren for the next meeting of the Association.

Prof. ACLAND exhibited a specimen of a living Proteus which, having compared it with a specimen in the possession of Prof. Owen—also placed on the table—he believed to be a new species. The two animals differed in colour, size, and the form of the gills—as well as in their habits; the one of Prof. Acland being much more active than that of Prof. Owen.

THURSDAY.

SECTION E.—PHYSIOLOGY.

President—Dr. OGLE.

Vice-Presidents—Prof. OWEN, Messrs. J. E. GRAY, G. NEWPORT, J. SIMON.

Secretaries—Dr. T. K. CHAMBERS, Mr. W. P. ORMEROD.

Committee—Prof. Allman, Dr. Milne Edwards, Sir J. Richardson, Mr. R. Carmichael, Dr. J. Forbes, Dr. Groshans, Dr. Acland, Dr. Addison, Dr. Ayres, Mr. W. B. Carpenter, Dr. R. Latham, Messrs. Lee, C. L. Parker, Th. Allen, Dr. Fowler, Dr. Boisragon, Dr. Hart, Mr. W. Bowman, Prof. Partridge.

The subjects in this Section being of purely medical interest, we shall only give the titles of the papers read:—

'Examination of the Blood Corpuscles of the

Amphioxus Lanceolatus,' by Mr. J. H. HUXLEY; with a Prefatory Notice, by Mr. T. W. JONES.

'Scarlatina increased and aggravated by want of Diet,' by Rev. T. RANKIN.

'Remarks on the Vital Principle,' by Mr. J. BILLET.

FRIDAY.

Dr. FOWLER made some remarks on cases of Foals of Ponies resembling Stags, considered doubtful by himself.

'On the Analogy of the Sclerogenous Tissue of Plants with the Bones of Animals,' by Dr. AYRES.

'On the Co-relation of the Vital and Physical Forces,' by Dr. CARPENTER.

'On the Functions of the Nervous Centres,' by Dr. CARPENTER.

'On Hydropathy,' by Mr. G. HUMPHAGE.

MONDAY.

'On the Powers or Causes which co-operate in the Production of the Phenomena of Life,' by Dr. ADDISON.

'On Baths and Washhouses,' by Mr. COTTON.

'On the Anatomy of the Eye, chiefly with reference to its Powers of Adjustment,' by Mr. BOWMAN.

Prof. GORINI exhibited some Anatomical Preparations.

'On the Peculiarities of the Blind, Deaf, Dumb, and Cretins,' by Dr. FOWLER.

THURSDAY.

SECTION F.—STATISTICS.

President—TRAVERS TWISS.

Vice-Presidents—Sir C. LEMON, Mr. H. HALLAM, Lieut.-Col. SYKES, Mr. G. R. PORTER.

Secretaries—Messrs. J. T. DANSON, F. G. P. NEISON, Rev. W. H. COX. Committee—Sir J. Boileau, Sir T. D. Acland, Dr. W. C. Taylor, His Ex. J. Bancroft, Mr. J. Heywood, Prof. Hancock, M. Bielke, Prof. Royle, Messrs. M. Ricardo, W. Neild, Milne Edwards, The Lord Bishop of Norwich, Major-General Briggs, The Master of University Coll., Ald. W. Thorp, Messrs. J. Fletcher, M. Milnes, Prof. Von Mohl, Rev. G. H. S. Johnson, Rev. E. Larkin, Rev. W. Edgell, Mr. N. Shaw.

The Section assembled and the chair was taken by the President a little later than the usual hour, in consequence of the great mass of papers submitted to the examination of the Committee.

Mr. PORTER read a paper, contributed by Mr. R. VALPY, 'On the Resources of the Irish Sea Fisheries.' Having dwelt at some length on the great abundance of fish in the Irish seas and the want of food by the Irish people, he stated that so far back as the ninth and tenth centuries the Danes had fisheries on the western coasts of Ireland, from whence they sent large exports to the south of Europe. In Queen Mary's reign Philip II. paid 1,000*l.* annually to purchase for the Spaniards a right of fishing on the Irish coast. The Dutch purchased a similar right from Charles II. for 30,000*l.*; and in 1650 Sweden was permitted, as a favour, to employ 100 vessels in the Irish fishing. From 1800 to 1830 the immense sum of 276,784*l.* was paid in bounties for the encouragement of Irish fisheries; but the system was found to encourage fraud rather than stimulate industry, and it was abolished. In 1821, the number of boats employed in the Irish fisheries were:—

	First class.	Second class.	Men.
In 1829 (the year before the abolition of the bounty) the numbers were	2,766	4,889	worked by 36,159.
In 1836	3,599	9,552	64,771
In 1843	2,897	7,864	54,119
In 1843	2,371	17,512	93,073*

Thus the abolition of the bounty, though it threw back the fisheries for a time, did not eventually injure their progress; the increase between the years 1836 and 1843 amounting to 37 per cent. All the Inspectors of Fisheries agree that within the last few years the character of the persons employed in the fisheries has been greatly improved. The author related minutely the history of several abortive efforts to establish joint-stock companies for conducting the fisheries of Ireland; one of which, that of Dunmow, near Waterford, seemed at one time to have very fair prospects of success. Having dwelt at some length on the white fishery, cod, ling, &c.—but with rather vague data for an estimate of its results—the notorious frauds committed under the bounty system rendering the returns then made to Government utterly unworthy of confidence.—Mr. Valpy directed attention to the herring fishery. The Irish herrings

* The numbers for 1846 are, boats of the first class 2,424, second class 11,793, men 98,538.